

EDEBOHLS (G.M.)

WITH COMPLIMENTS OF THE AUTHOR.

31

NOTES ON

Movable Kidney AND Nephrorrhaphy.

BY

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NOTES ON MOVABLE KIDNEY AND NEPHRORRHAPHY.*

I.—STRANGULATED MOVABLE KIDNEY; A PLEA AND A PLAN FOR ITS ACTIVE TREATMENT.

On September 28th, 1894, I was asked by Dr. A. Baron, of this city, to see with him Miss C. B., aged 28 years. On the way to her residence Dr. Baron gave me the following history of the case. Patient was well up to eight years ago. Since that time she has been a constant sufferer from dyspeptic symptoms, discomfort when lying on left side, cardiac palpitation and general nervousness. No disturbances in the genital sphere.

For the past six years she has noticed a growth or swelling in the right lumbar and inguinal regions, which was pronounced a movable right kidney in November, 1891, by her former family physician. In this diagnosis Dr. Baron concurred.

In October, 1892, she was suddenly taken ill with vomiting, general distress, great pain in right side and back and rectal tenesmus. Dr. Baron, who attended her, diagnosticated strangulation of the movable right kidney, and succeeded in terminating the attack, after it had lasted about 15 hours, by manipulation of the offending organ.

A second attack of strangulation of the movable right kidney came on very suddenly on Sept. 28th, 1894, at 11 o'clock A. M. Dr. Baron failed to relieve it by the manipulation employed in the first attack. I first saw the patient with Dr. Baron at 6.30 P. M., some eight hours after beginning of the attack. She presented the classical clinical picture of strangulated movable kidney:—agonizing pain in the right half of abdomen, which a liberal hypodermic of morphine had failed to relieve in the least degree; intense nausea, chilly sensations, cold, clammy perspiration and a general feeling of extreme distress. The pulse was 110 and small, and the general picture that of profound shock; temperature normal.

On examination the entire abdomen was found moderately tympanitic and sensitive to pressure. Occupying the right lumbar region, distending it and extending into the neighboring regions, was found a globular, elastic tumor, some twenty centimeters in diameter, and exquisitely painful on manipulation.

Even with the straight history it was not easy to persuade one—

*Read before the New York Obstetrical Society, December 4th, 1894.

self that this tumor represented the movable right kidney. There was absolutely no approximation to the renal shape. The tumor was manipulated in the manner presently to be described.

In less than five minutes it assumed in my hands the normal shape of the kidney and was then gently pushed up beneath the right ribs. Every symptom disappeared at once, as if by magic, and the patient was herself again. A few hours later there was a somewhat copious secretion of urine; on the next morning the patient left bed and resumed her household duties.

The manipulation which fortunately gave such prompt relief to our patient was the outcome of some thought upon the probable etiology of strangulated movable kidney and the mechanism of its production. To my mind incarceration, followed by strangulation, of a movable kidney can only occur under one mechanical condition, *i. e.* when the lower pole of a descending kidney impinges against the anterior abdominal wall in such a manner that its further progress downward is arrested. If, while the lower pole is fixed against the anterior abdominal wall, the upper pole of the kidney continues its descent until it reaches a horizontal level lower than that of the lower pole, any strain involving contraction of the abdominal muscles must tend to increase the rotation of the kidney upon an axis formed by the renal artery and vein and the ureter. The arc of rotation while the kidney remains in this abnormal position, with its lower pole forward and upward and its upper pole downward and backward, will vary between 90° and 180° —quite enough of a twist for the short root of the kidney.

Incarceration of the kidney with torsion of the ureter, renal-artery and vein leads to almost immediate distention of the renal blood-vessels and hydronephrosis, and soon the strangulation is complete.

Assuming the correctness of this theory of the production of strangulated movable kidney, a logical attempt at a correction of the condition must look to a reversal of the mechanism of production. That is, the renal tumor being grasped in both hands, one placed upon the back and one upon the front of the abdomen, rotation of the tumor is effected in such a manner that the displaced lower pole is caused to descend along the back of the anterior abdominal wall, while the displaced upper pole glides upward along the posterior abdominal wall to its place beneath the diaphragm.

As already stated, this taxis succeeded at once in our case, and within five minutes the huge globular renal tumor assumed the shape of a normal kidney in the manipulating hands. The normal-sized kidney was now pushed up into its place, and the relief was as immediate as obtains in our most favorable and brilliant cases of reduction of incarcerated hernia.

One of the most recent and authoritative works upon movable kidney, (Paul Wagner, *Abriss der Nierenchirurgie*, 1893, p. 230), thus sums up the therapeusis of strangulated movable kidney :

"A purely symptomatic treatment is the only thing in order ; rest in bed, rigid diet, warm moist applications, eventually warm baths, narcotics. Attempts at reposition during the persistence of symptoms of incarceration are useless and do harm rather than good."

Comment upon these utterances, which seem to represent the general attitude of the profession, is superfluous after the recital of the history of the case just reported.

To Dr. A. Baron belongs the credit of having, as far as my knowledge goes, first succeeded (in October, 1892), in the reduction of a strangulated movable kidney, although the reduction was effected by manipulation without a systematic plan further than to push the displaced organ into place. The only originality claimed by the author is in the formulation of a plan of reduction applicable to all cases of strangulated movable kidney and in first having put this plan to a practical and successful test.

An examination of the patient a few days later showed mobility of both kidneys, the right being movable fifteen, and the left twelve centimeters.

On October 17th, 1894, with the kind assistance of Drs. A. Baron, J. D. McBarron and J. S. Richardson, bilateral nephrorrhaphy was successfully performed at the home of the patient.

II.—THE RELATIONS OF MOVABLE RIGHT KIDNEY AND APPENDICITIS.

In the early half of 1893 my attention was called to the possibility of a relation between movable kidney and appendicitis in the following manner. It so happened that I was called upon, within a period of four months, to operate upon three cases of acute appendicitis, or rather exacerbations of chronic appendicitis, in all three of which I had a short time previously performed nephrorrhaphy for movable right kidney. One of these patients was operated upon for appendicitis within four weeks after nephrorrhaphy ; the other two after a longer interval. The attention of myself and of my house staff having thus been called to the suspiciously common coexistence of the two conditions, we began to investigate the frequency of the combination. As I make it a rule to examine every patient both for movable kidney and for the presence or absence of a diseased appendix, we were not long in reaching definite conclusions.

The results of our investigations were rather startling. We found that over sixty per cent of patients *with movable right kidney producing symptoms* were at the same time possessors of more or less diseased appendices vermiformes. The appendicitis varied from the mildest forms of congestion and catarrhal appendicitis, to the severer types of the disease imperatively calling for surgical interference. The diagnosis of movable kidney was made according to the now well established rules ; that of appendicitis by careful palpation of the vermiform appendix, according to the method

described by the author (*American Journal of the Medical Sciences*, May, 1894.)

Since April 28th, 1893, I have removed not less than ten diseased appendices vermiformes thus coexisting with movable right kidney. All of the cases were successful and made prompt recoveries, and in all the previous diagnosis of appendicitis, made by palpation, was confirmed at operation.

The practical importance of this, as far as I know, new observation becomes at once apparent. We may successfully anchor a movable kidney by nephrorrhaphy and yet fail to relieve our patient of all her symptoms, many of which may depend upon the appendicitis, and vice versa.

As a matter of practical experience I have found that in the majority of patients with movable right kidney and appendicitis, whose history I have been able to follow, the appendicitis improved more or less after fixation of the kidney by nephrorrhaphy. Thirteen of them, however, had one or more attacks of acute appendicitis after the nephrorrhaphy. Three of these declined operation; in the remaining ten, as already stated, I removed the offending appendix.

The writer believes that the movable right kidney is directly responsible for the appendicitis in the vast majority of these cases of coexistence of the two affections. Nor is this causal relation very difficult to understand when we consider the vascular supply of the appendix, and the way it must be interfered with by a movable right kidney. The appendix vermiformis receives its blood supply from the ileo-colic branch of the superior mesenteric artery. Its blood is returned by way of the superior mesenteric vein, the large trunk of which "ascends along the right side and in front of the corresponding (superior mesenteric) artery, passes in front of the transverse portion of the duodenum, and unites behind the upper border of the pancreas with the splenic vein to form the vena portæ." (Gray).

One of the first things a movable right kidney must do is to dislocate the duodenum and head of the pancreas, compressing the superior mesenteric vessels between the head of the pancreas and the bodies of the spinal vertebrae. The interference with the circulation of the appendix cæci soon leads to chronic congestion of the organ, and that once established the way for appendicitis is paved.

III—MOVABLE RIGHT AND LEFT KIDNEYS. PYONEPHROSIS DEXTRA. NEPHRORRHAPHY AND NEPHRECTOMY AT ONE SITTING.

The case is reported because nephrorrhaphy on one side and nephrectomy on the other, at the same sitting, is possibly still a unique performance.

Mrs. L. B., aged twenty-seven, the wife of a physician, was brought to me for consultation by her husband, May 2d, 1894.

She began to menstruate at the age of ten and a half, the flow occurring regularly every four weeks, being very free, and lasting ten to twelve days. Dysmenorrhœa up to the birth of her first child; none since. She was married at seventeen, had no miscarriages and gave birth to two children, the last in September, 1889.

Her chief and most distressing symptom, dating back to the age of seven years, has been a persistent, more or less severe pain in the right middle and lower abdomen. From the age of twelve there have been, in addition, moderate leucorrhœa, constant backache, bearing down pains in lower abdomen, irritable bladder, and inability to lie on either side, the dorsal decubitus being the only comfortable one.

Some two years ago Dr. Alexander Skene, of Brooklyn, diagnosticated a movable right kidney. Several other physicians subsequently examined her, but did not concur in the above diagnosis. Some of them denied the existence of any tumor whatsoever, among them a prominent gynecologist, who examined her carefully under ether, curetted the uterus and repaired a lacerated cervix. No attempt was made to treat surgically a retroversion of the uterus which existed at the time of operation. The failure to recognize the movable kidney in narcosis was no doubt due to the fact of the examination being made with the patient flat on her back,—which but emphasizes the demand I have elsewhere formulated, to make all examinations for mobility of the kidneys with the patient in the erect position.

Great improvement for a time followed the operation of trachelorrhaphy and curettage—due probably in great part to the long rest in bed—but soon the old troubles returned and the patient became addicted to the habitual use of morphine. Dr. Chas. B. White, who saw the patient shortly before she consulted me, diagnosticated movable right kidney with intermittent hydro-nephrosis, a diagnosis in which I concurred.

The following was recorded as the result of my first examination:—Right kidney displaced far downward, its lower pole reaching almost to pubis, greatly enlarged, of irregular contour and uneven surface. It can be pushed up into its normal position, but only with some difficulty. Left kidney movable three inches, easily replacable. Appendix vermiformis normal. Tubes and ovaries normal in size, prolapsed backward with retroverted fundus uteri. Uterus increased in size about fifty per cent., retroverted in second degree, readily anteverted. Heart sounds normal. Urine (one examination) presents nothing abnormal. Bilateral nephrorrhaphy advised, to be followed subsequently by curettage of uterus and shortening of round ligaments.

Operation, May 23, 1894, at a private residence, with the kind and efficient assistance of Dr. C. B. White. Ether. Usual incision in back over right kidney. Liver presented in wound. Peritoneum wounded and the accident availed of to make digital exploration of the adjacent viscera. Peritoneal wound closed by

running catgut suture. A portion of the right kidney, four inches in length, was now brought to the bottom of the wound. It so greatly resembled the distended large intestine that for a time we were in doubt about its identity. It was finally identified by rolling it around and stripping off the perirenal fat until the ureter and renal vessels were recognized. The kidney itself, after coaxing it out upon the back, measured twenty-three centimeters in length, and was converted into a thin sac moderately distended with fluid. It was returned into the body to await the result of an exploratory incision upon the left kidney. The left kidney was found enlarged but otherwise healthy, evidently doing, and able to do, the work of both. It was anchored in the way described by the writer (*American Journal of the Medical Sciences*, March and April, 1893.), and the left wound closed. Returning now to the right kidney, this organ, evidently degenerated beyond the possibility of repair, was removed without spilling a drop of its contents, the renal artery and vein, and the ureter being separately tied with silk. Iodoform gauze tamponade of wound. On examination after removal the right kidney was found distended into a huge sausage shaped sac, the walls of which were everywhere as thin as the walls of the renal pelvis. This sac was filled with purulent urine having a decided ammoniacal odor (Specimen presented.)

The patient under the care of Dr. White, who kindly undertook the after treatment, made a good recovery, marred only by an attack of acute catarrhal pneumonia in the third week, and by the occurrence of suppuration, requiring the subsequent removal of the buried silkwormgut sutures and of the silk ligatures around the renal vessels and the ureter.

The patient's husband writes, under date of Nov. 30, 1894: "Wife was operated on May 23. June 13, you and Dr. White removed some stitches. Oct. 31st, Dr. White etherized her and secured both ligatures, and removed one stitch from left side. All this time both wounds suppurated: still she increased slowly in strength and flesh. Nov. 7th found both wounds closed and they have remained so. Wife complains only of symptoms due to her uterine retroflexion. From weighing 112 pounds six weeks after operation she has gone up to 136 and looks the best she has looked in nine years. She attends to household duties, eats regularly, sleeps well, and requires no medicine. The remaining kidney stays anchored."

IV.—THE SUTURE MATERIAL IN NEPHRORRHAPHY.

In all my nephrorrhaphies, with the exception of the first four, the buried suture was used to anchor the kidney. In eight the material of the buried suture was either kangaroo tendon or chromicized catgut; in forty-seven silkwormgut. I have until quite recently given the preference to the non-absorbable silkwormgut, as more likely to contribute to a secure permanent

anchorage of the kidney. It so happens, however, as will be further detailed in the next note, that the only two kidneys upon which I have performed nephrorrhaphy and which to my knowledge have again become movable, were fastened by buried silkworm sutures, though this fact had, I believe, nothing to do with this result.

My main reason for now preferring chromicized catgut to silkwormgut as a buried suture in nephrorrhaphy lies in the fact that the buried permanent suture may, months and years after operation, establish a fictulous sinus and require removal; and the removal of a buried silkworm suture from the kidney is not always an easy matter. The sclerotic changes in the parenchyma of the kidney which Le Cuziat has shown to occur to a depth of three to four millimeters along each suture probably depends very little, if at all, upon the material of which the suture is composed. My catgut is chromicized to last from five to ten weeks.

With this exception of change of material for the buried suture, the writer has found no occasion to alter the technique of nephrorrhaphy as he originally described it.

V.—THE RESULTS OF NEPHRORRHAPHY.

Since February 8, 1890, the date of his first operation, the writer has performed nephrorrhaphy upon fifty patients, all women. In nine of these fifty patients both kidneys were anchored, making fifty-nine nephrorrhaphies in all. One of the patients, Case IV, elsewhere reported in full, died. Of the remaining fifty-eight anchored kidneys only two have, to the writer's knowledge, again become movable. In both cases, however, such a result was not to be marveled at, and scarcely speaks against the technique of the operation.

Upon the first of these two patients bilateral nephrorrhaphy was performed March 10, 1893. In presenting her to this Society, April 18, 1893, I remarked on the "wilfulness of the patient, sitting up in bed repeatedly during the first six days after operation." Under date of October 26, 1894, Dr. Ernest Palmer, of Brooklyn, kindly writes me:—"I found that the kidney of the right side had become detached from its anchorage and has descended to a point midway between the anterior superior spine of the ilium and the umbilicus. The left is firmly attached."

The second case, a patient of Dr. G. Wiener, had chronic nephritis for several years before operation and a movable right kidney. The symptoms due to the mobility of the right kidney were so urgent that both Dr. Wiener and his patient, the latter also with a full knowledge of her nephritis, desired nephrorrhaphy. The operation was performed at the house of the patient, with the kind assistance of Dr. Wiener, on May 11, 1893. The kidney was found extensively diseased, its surface being nodular and the capsule irregularly thickened and very adherent as a result of inflammatory changes. On the posterior aspect of the

kidney, near its lower pole, squarely in the centre of that portion of the kidney we depended upon for adhesion to the lumbar incision, a cyst nearly four centimeters in diameter was encountered. The contents of the cyst, a turbid serum, were evacuated by incision through the kidney substance, the wound of kidney being closed by running catgut suture. The kidney was then anchored in the usual way by five buried silkworm sutures.

The wound healed by primary union throughout. Dr. Wiener informs me that all the symptoms due to the movable kidney disappeared for a period of eight to ten months, when the kidney again became as movable as ever, with a return of all her former symptoms.

Of the forty-one cases in which one kidney alone required fixation, forty were cases of movable right kidney and only one a movable left kidney. In this latter case the dislocation of the kidney was acute, the cause being a violent fall down stairs.

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